

Answering nature's call

Well designed, responsible, considerate and accessible – the ecological convenience



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The further you get from the services of the modern world, the more challenging access issues become. Yet, for one ecologically-minded company, an absence of electricity, water and sewerage was the starting point for the design of their accessible off-grid toilet. Here, Andrew Warren, Managing Director of NatSol Compost Toilet Specialists describes the company's approach and their commitment to inclusive design, while Val Markley, Access Consultant at MaceMark Access Consultants Ltd, shares with us her design review findings of a NatSol Compus toilet in Kent.

by Andrew Warren, Managing Director of NatSol Compost Toilet Specialists

Toilets are universal. We all need them, use them and rely on them every day. The buildings we inhabit may be remarkably diverse but the toilet is a reassuringly consistent and familiar feature within them all. It is therefore no surprise that the accessibility of toilets has long been a focus for design good practice. By now, every architect and designer in Britain ought to know how to specify an accessible toilet.

But nature does not only call when we are

comfortably located within buildings with water, electricity and sewerage connections. When we leave such buildings behind to seek work or recreation off-grid, be it in the countryside, in allotments or at the local nature reserve, the need for a reliable, accessible toilet remains just as great. Happily, this need can be met perfectly well, though an absence of water and sewerage demands a completely different approach to toilet design. This in turn requires accessibility issues to be carefully reconsidered.

Many toilets located away from public sewers empty into septic tanks or cesspools. To the user, these are indistinguishable from ordinary

sewer-connected toilets. However, such toilets still require a supply of water (which may freeze in winter) and the occasional visit from a disposal truck to operate effectively. Genuine autonomy is only gained when these connections are also severed. In practice, the only way of achieving this is to deal with the waste in situ by composting it.

Acceptable and accessible

Composting toilets have a very long pedigree but have been so marginalised by the modern water closet that they inevitably create anxieties among today's users, especially those who are not familiar with the technology. If the all-important flush is removed, reasonable concerns about effectiveness, cleanliness and odour are raised. Thus the design of an off-grid compost toilet must address acceptability as well as accessibility in order to ensure that prospective users are both willing and able to use the facility.

NatSol, based in mid Wales, has responded to this challenge with a composting toilet that is designed to be both acceptable and accessible to all users. The NatSol Compus Twin Full Access toilet aims to be straightforward and pleasant to use, accessible to everyone regardless of disability or visual impairment, and robust in the damp British climate. It is also designed to be acceptable to the toilet owner, who must ultimately take responsibility for disposing of waste.



A compost toilet within an allotment in Wiltshire

As anyone who regularly composts kitchen and garden waste will know, one compost bin may not be adequate for the job. Once your bin is filled up, it has to be left for a while in order that the many micro-organisms within it can turn the waste into rich, crumbly nutrients for your soil. So you may need another bin to fill while this composting process is taking place.

The NatSol Compus Twin toilet works on the same principle. The toilet pedestal sits on top of one of two underground chambers. While one chamber is in use, the other chamber is sealed, allowing the composting to take its natural course. After a year, the composted contents can be easily removed without any unpleasantness and the chambers switched to start the process again. It is a simple and effective method.

Another key feature of the design is the separation of urine from solid waste. A urine separating plate in the pedestal directs urine away from the composting chamber to a buried soak-away vessel. Men also have the option of using a urinal. This separate treatment of urine ensures that the compost chamber stays relatively dry, ammonia-free and odourless.

Those who open the toilet door fearing a dreadful stench are immediately reassured. A wind-driven ventilation pipe also helps to clear odours but, as the toilet is designed for use in Britain rather than the sultry Mediterranean, the design does not rely on evaporation to function properly. It will work effectively even in the damp-heart of Wales.

The NatSol Compus Twin toilet operates without water, electricity and sewerage. Its biological design also means that no chemicals are needed. However, as any home composter will know, the best compost is achieved when nitrogen and carbon are balanced.

So, just as torn-up egg boxes should be added to kitchen scraps, so it helps to add carbon to the solid waste in the composting chamber. This is easily achieved with wood-shavings, which can be added after each use, contributing to the suppression of odours. Alternatively, they can be added on a daily basis. Like the home compost bin, the NatSol toilet requires minor but regular attention.



A new cob walled and thatched compost toilet being built at Menter Felin Uchaf, Wales



Putting thatch on the compost toilet roof



Limewashing the compost toilet



Young volunteers helping to limewash the walls of the toilet

As the toilet is designed to operate without water, hand hygiene is maintained by the provision of a wall-mounted dispenser of disinfectant gel. This removes the need for a sink, which in turn means that there is more space for people using mobility aids to negotiate the space inside the cubicle. The toilet itself does not need to be cleaned as frequently as an ordinary toilet because the pedestal sits directly above the compost chamber, so pipework to redirect the solid waste elsewhere is not needed.

NatSol Compus toilets have been installed in a wide range of locations including allotments and community gardens, churches, parks, nature reserves and assorted off-grid buildings. As their purpose is to enable the wider use of such locations, it is no surprise that accessible design of the toilet itself has long been a concern of the company. Standard good practice for accessible toilet design cannot be followed to the letter because of the constraints of the off-grid design. For example, the lack of an electricity supply means that artificial lighting and alarms cannot be installed. However, as far as possible, NatSol has sought to ensure that the toilet can be accessed and used comfortably by everyone.



This compost toilet, in an allotment in Cardiff, was installed earlier this year and has since been decorated by the allotment group

NatSol's primary goal has been to ensure that the internal layout of the cubicle provides enough space for people with disability aids to move around and enough support to enable them to get on and off the pedestal with minimum effort. This has been challenging because the pedestal can be in one of two positions depending on which composting chamber is being used. However, careful positioning of handrails and the other components within the cubicle including the urinal and the disinfectant dispenser has ensured that the toilet is accessible and usable in both positions.



The interior of a compost toilet built on the Forest Farm Allotments in Wales.

A recent assessment of the NatSol Compus Twin Full Access toilet by MaceMark Access Consultants was very positive and the recommendations made by the consultants are all being addressed in a revised design. A particular challenge for NatSol is to ensure that the installation and maintenance of the product do not compromise the accessibility of their design.

This is an issue because the company delivers but does not install the product. Clear design advice about the access route to the cubicle is therefore



Forest Farm Allotments opened their compost toilet earlier this year.

essential and revised guidance has been prepared since the MaceMark assessment.

The installation of a NatSol Compus Twin Full Access toilet is likely to be a significant investment for many groups or organisations operating premises or services off-grid, with a typical installation costing around £8,000. This is, however, likely to be a good deal cheaper than installing a full flush system and has lower running costs.

'Given that a toilet is such a fundamental need, the Compus toilet offers a real opportunity to open up an extraordinarily wide range of otherwise inaccessible places to everyone.'

Design review of the NatSol Compus Twin Full Access Toilet

by Val Markley, MaceMark Access Consultants Ltd

Given the constraints on the design of composting toilets, some compromises in inclusive design are to be expected. Nonetheless my experience of a NatSol Compus toilet installed at the Enchanted Forest run by the Temple Hill Trust in Dartford, Kent was very positive. I found the design of the toilet to be extremely well thought out.

One of the key design constraints is the need to change the position of the toilet depending

on which of the two chambers is being used for collection of waste. This means that the toilet must be accessible from both positions. This has been achieved by ensuring that the pan is the correct distance off the return wall in both positions. There are handrails on both walls at the correct height to provide support for getting on and off the seat.

Although a standard wheelchair accessible toilet pan would not have a lid, the NatSol design includes one. This is reasonable, given the importance of covering the composting chamber when not in use. However, the seat itself could be improved by the addition of retaining buffers (lugs that hold the sides of the seat in place on the pan). This was recommended as it would make the seat more robust and hold it in place when transferring sideways onto or off the pan.

As there is no water, there is no flush. Instead there is a box of wood shavings where the cistern would usually be. This is potentially awkward for some people to use, particularly if the box is less than half full, as it is necessary to reach into the box to scoop out the shavings. Fortunately, however, it is not necessary to use these shavings after every use, so the lack of universal access to these shavings is not a problem.

The minimum turning space for a wheelchair is protected with the urinal positioned outside it. The urinal itself has a contrasting splash-back which gives very good tonal contrast. However the addition of a vertical handrail to assist people when standing at the unit was recommended.

The hand wash disinfectant dispenser is carefully located such that it can be reached when seated on the pan (on both sides). This allows people to clean their hands before returning to using their mobility aids. The unit is activated using a push-lever, which requires some hand dexterity and strength to use but equally can be operated using only one hand. NatSol are looking at alternative easy action dispensers.

Identifying the optimal position for the vertical handrails on the wall behind the toilet has been difficult as these have to work with the toilet in both positions while also leaving room for the box of wood shavings.

This has largely been achieved though the handrails viewed were shorter than standard, potentially failing to provide a handhold at a comfortable height for standing adults when adjusting their clothing or using the shavings box. Longer handrails were therefore recommended. Small adjustments to the standard recommended positioning of the vertical handrails were identified in order to provide better access to the box of wood shavings without compromising the operation of the central drop-down rail.

The only other design recommendation made was to improve the visual contrast of the door handle and lever lock.

NatSol only supply the units with the installation and ongoing management carried out by others. This means that there is a risk that the accessibility of the units will be undermined by poor design of the approach route and lack of day-to-day accessibility management.

Consequently, there is scope for NatSol to direct clients and / or contractors to their local authority Access Officer or a private Access Consultant through the National Register of Access Consultants to ensure optimal design of approach routes and long-term inclusive access. ●

For further information about NatSol and the NatSol Compus Twin Full Access toilet, visit the NatSol website

www.natsol.co.uk

For further details about MaceMark access consultancy, visit the MaceMark website

www.macemark.co.uk

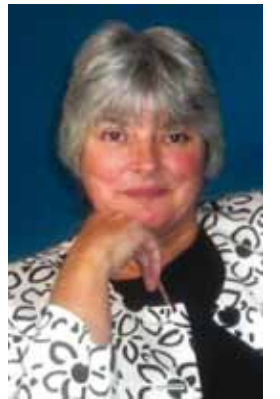
The National Register of Access Consultants can be contacted via the NRAC website

www.nrac.org.uk

Summer holidays

Getting out and about, shaking off those winter blues and indulging adventurous spirits

The annual summer holiday advertising frenzy promises sparkling seas, golden sands, cultural cocktails and must-see destinations. However, as many people prepare to jet-off, Vivien King reminds us about some of the issues many disabled holiday-makers will face when planning their breaks this year. There is real effort and expense involved in planning the highly anticipated ideal holiday but for some, disappointment, inconvenience and exclusion will all have to be overcome before any relaxation, luxury, attractions or adventures can be indulged.



Planning a holiday or a short trip can be such fun. Out come the maps, brochures, hotel details, timetables and guide books. Or perhaps one does all one's planning online? But how does one cope if there is a nagging doubt concerning access? Can I park, get on and off the train, boat or plane, will there be a lift, a working induction loop, acceptance of an assistance dog, an accessible toilet and, friendly and not condescending staff who will be able to respond respectfully to my particular requirements? Holidays and any accompanying excitement can be quashed by people inadvertently not understanding the importance of accessibility.

Leonard Cheshire prepared a report on hoteliers entitled No Room at the Inn in June 2005. Its opening paragraph states:

1.51 million domestic tourism trips were undertaken by the UK population in 2003, with 41 per cent of those people staying in hotels. There are 10 million disabled people in the UK with an estimated purchasing power of £80 billion. However, much of this remains unspent when it comes to holidays and leisure. All too often disabled people wishing to holiday in the UK are unable to access facilities or the same levels of service as non-disabled people.

Have matters improved in the intervening years?

Let us consider travel, accommodation and local attractions – but first, there is the legislation and consideration of obtainable information, help and assistance.

The legislation

The Equality Act 2010 supports anyone with one or more of the protected characteristics listed in the Act, including disability. It imposes upon various groups within England, Scotland and Wales a variety of duties. These groups include service providers – those concerned with the provision of a service to the public or a section of the public (for payment or not) for instance a provider of transportation, accommodation or leisure services including catering and entertainment.

The duties are varied. They include not discriminating by refusing to offer a service or by providing differing terms to a person with a protected characteristic or harassing or victimising that person. A service provider must also make reasonable adjustments to accommodate any person with impairments be they physical or mental. A reasonable adjustment has three requirements: